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Receptor-Ligand Interactions and Adsorption at the Oil Water Interface KENNETH SHULL, DANIEL CARVAJAL, Northwestern University, CHI-YANG CHAO, Industrial Technology Research Institute of Taiwan, R.O.C — Liquid/liquid interfaces are excellent models for studying adsorption processes, because equilibration at these interfaces occurs more readily than at liquid/solid interfaces. In addition, the interfacial tension can be measured directly, and can be used to probe adsorption processes and molecular binding events that take place at the interface. In this investigation we use drop shape analysis to study receptor/ligand interactions at the chloroform/water interface. A pendant chloroform droplet is suspended in water. When hydrophobically-modified polyethylene glycol is added to the chloroform droplet, segregation of this molecule to the interface introduces a barrier to protein adsorption from the aqueous phase. Avidin adsorbs irreversibly to the oil water interface when the terminus of the PEG molecule is functionalized with biotin. By changing the volume of the chloroform drop (and hence the interfacial area) we obtain pressure/area isotherms at fixed avidin coverage. Adhesion of these functionalized interfaces to other surfaces can be quantified by bringing the pendant drop into contact with another surface or interface, and measuring the contact angle.

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